POTATO CROP

VARIETY, WEED AND PEST CONTROL RECOMMENDATIONS

1991

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for the

ATLANTIC PROVINCES

Prepared by the
ADVISORY COMMITTEE ON POTATOES

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For additional information regarding potato production, refer to Publication 1300, Atlantic Canada Potato Guide.

METRIC CONVERSION FACTORS FOR ENGLISH SYSTEM

Metric units	÷ Approximate conversion factor =	Results in:
LINEAR		
millimetre (mm)	÷ 25	inch
centimetre (cm)	÷ 30	foot
metre (m)	÷ 0.9	yard
kilometre (km)	÷ 1.6	mile
AREA		
sq. centimetre (cm2)	÷ 6.5	square inch
sq. metre (m2)	÷ 0.09	square inch
hectare (ha)	÷ 0.40	acre
VOLUME		
cubic centimetre (cm3)	÷ 16	cubic inch
cubic decimetre (dm3)	÷ 29	cubic foot
cubic metre (m3)	÷ 0.8	cubic yard
millilitre (mL)	÷ 28	fluid ounce
litre (L)	÷ 0.57	pint
litre (L)	÷ 1.1	quart
litre (L)	÷ 4.5	gallon
hectolitre (hL)	÷ 0.36	bushel
WEIGHT		
gram (g)	÷ 28	ounce
kilogram (kg)	÷ 0.45	pound
tonne (t)	÷ 0.9	ton
TEMPERATURE		
degrees Celsius (°C)	(9/5 x °C) + 32	degrees Fahrenheit
PRESSURE		
kilopascal (kPa)	÷ 6.9	pounds per square inch
POWER		
watt (W)	÷ 746	horsepower
kilowatt (kW)	÷ 0.75	
SPEED		
metres per second (m/s)	÷ 0.30	feet per second
kilometres per hr. (km/h)	÷ 1.6	miles per hour
AGRICULTURE		
hectolitres/hec. (hl/ha)	÷ 0.90	bushels per acre
litres per hec. (L/ha)	÷ 11.23	gallons per acre
litres per hec. (L/ha)	÷ 2.8	quarts per acre
litres per hec. (L/ha)	÷ 1.4	pints per acre
millilitres/hec. (mL/ha)	÷ 70	fluid ounces per acre
tonnes per hec. (t ha)	÷ 2.24	tons per acre
kilograms per hec. (kg/ha)	÷ 1.12	pounds per acre
grams per hec. (g/ha)	÷ 70	ounces per acre
plants per hec. (plants/ha)	÷ 2.47	plants per acre

Examples: 3 km ÷ 1.6 = 1.9 miles
4 ha ÷ 0.4 = 10 acres

13.5 hl/ha ÷ 0.90 = 15 bushels per acre

Forward revisions for the 1992 Potato Crop Variety, Weed and Pest Control Recommendations to Guy Bernard, N.B. Department of Agriculture, R.R. 2, Florenceville, N.B., E0J 1K0 by October 15.

POTATO VARIETIES ELIGIBLE FOR CERTIFICATION IN CANADA AS SEED POTATOES
OCTOBER, 1990

91-06523/

***A69868-2
Abnaki
Acadia Russet
**Alpha
Anson
Atlantic
Avon
****Banana
Batoche
Belchip
Belleisle
**Belrus
Bintje
Blue Mac
Brigus
*Butte
Caribe
Carlton
*Chaleur
Cherokee
Chieftain
*Coastal Russet
Connestoga
Cupids
*Crystal
*****Desiree
Domino
Donna
Early Rose
Epicure
Eramosa
*FL 657
*F70021
*F73008
Fundy
***Goldrus
Gold Coin
Green Mountain
*Hampton
Hudson
Hunter
Huron
*Islander
Irish Cobbler
Jemseg
Katahdin
Kennebec
Keswick
McIntyre
Mirton Pearl
Monona
Mouraska
Nipigon
Niska
Nooksack
Norchip
Norgold Russet
Norland
Onaway
Pink Pearl
Pungo
**** Purple Chief
Raritan
Red Gold
Red La Soda
Red Pontiac
* Redsen
*** Rhinered
Rideau
Rose Gold
Russet Burbank
*** Russet Norkotah
* Russette
Sable
Saginaw Gold
Sangre
Sebago
Shepody
Simcoe
* Somerset
* Sunrise
Superior
Tobique
Trent
Viking
Warba
Wauseon
White Rose
Yukon Gold
*** Yankee Chipper

* Interim Registration – expires May 1, 1991

** Interim regional registration for P.E.I., N.B., N.S. and Nfl. only – expires May 1st 1991

*** Interim registration – expires June 9, 1991

**** Interim registration – expires March 31, 1991 - for P.E.I., N.B. and N.S.

***** Interim registration for P.E.I., N.B., N.S., Nfld., and B.C. – expires May 1, 1991

POTATO EXTENSION SPECIALISTS

Newfoundland Rural, Agriculture and Northern Development

P.O. Box 640
Bishop Falls A0H 1C0
Tel.: 709-258-5334

Provincial Agriculture Bldg.
Brookfield Road
Mt. Pearl A1C 5T7
Tel.: 709-737-2639

Box 340
Pasadena A0L 1K0
Tel.: 709-686-2546

New Brunswick Dept. of Agriculture

Florenceville, R.R. 2, E0J 1K0
Tel.: 506-392-6007

Grand Falls E0J 1M0
Tel.: 506-473-5515

Fredericton E3B 5H1
Tel.: 506-453-2172

Bon Accord Seed Potato Farm
R.R. 6, Perth-Andover
E0J 1V0
Tel.: 506-273-2703

Nova Scotia Dept. of Agriculture and Marketing

Kentville B4N 1J5
Tel.: 902-678-7365

Truro B2N 5E3
Tel.: 902-895-1571

Prince Edward Island Dept. of Agriculture

Charlottetown, C1A 7N3
Tel.: 902-368-5600

P.E.I. Elite Seed Farm
Alberton, R.R. 1, C0B 1B0
Tel.: 902-853-2619

TOXICITY TABLE

LD50	Hazard Rating	Hazard Symbol
Above 500	Very Low Hazard	VLH
101 - 500	Low Hazard	LH
21 - 100	Moderate Hazard	MH
11 - 20	Very High Hazard	VHH
10 and less	Extremely Hazardous	EH

ABBREVIATIONS

SU suspension
WP wettable power
DU dust
kg kilogram
ha hectare

SC spray concentrate
SN solution
SP soluble power
g gram
L litre
mL millilitre

DP dispersable powder
EC emulsifiable concentrate
GR granular
DF dry flowable
SURF surfactant

INSECTICIDES

Ratings: All insecticides recommended in the table will control the pests. Differences in rating indicate less effectiveness, sensitivity to temperature, potential resurgence of other pests or combinations of these and other factors.

Please see Insecticide notes and/or your Extension Specialist.

E-Excellent
G-Good

S-Spray
B-Band
I-In Furrow
BR-Broadcast

*-Apply at Planting
•-Not recommended or Not Registered

Chemical	Product	Formulation	Product Per Hectare	Days to Harvest	INSECT CONTROL RATING						Application Method	Hazard Hazard
					Green Peach Aphid	Potato Aphid	Buckthorn Aphid	Colorado Potato Beetle	Flea Beetle	Wireworms		
Carbamates												
carbaryl	SEVIN 50W	WP	1.1 - 2.2 kg	7	•	•	•	G	G	•	S	VLH
	SEVIN 80S	DP	0.75 - 1.5 kg									
	SEVIN XLR	SU	1.25 L									
carbofuran	FURADAN 10G	GR	32.5 kg	*	•	•	•	G	G	G	B/I	EH
	FURADAN 480F	SU	0.6 - 1.7 L	7	•	•	G	G	G	•	S	EH
oxamyl	VYDATE 240EC	EC	2.3 - 3.0 L	7	G	G	•	G	G	•	S	MH
pirimicarb	PIRIMOR 50WP	WP	0.43 - 0.55 kg	7	E	E	E	•	•	•	S	LH
Chlorinated hydrocarbons												
endosulfan	ENDOSULFAN 400EC, THIODAN 400EC	EC	1.4 L	7	•	•	G	G	G	•	S	MH
Organo-phosphates												
azinphos-methyl	GUTHION 240SC	SC	1.8 - 3.6 L	7	•	•	G	G	G	•	S	VHH
chlorpyriphos	LORSBAN 4E	EC	1.0 L	7	•	•	•	G	E	•	S	LH
demeton	SYSTOX 240SC	SC	0.8 - 2.2 L	21	G	E	E	•	•	•	S	EH
dimethoate	CYGON, SYS-TEM 480EC	EC	1.1 L	7	•	E	E	•	•	•	S	LH
disulfoton	DI-SYSTON 15G	GR	16.8 - 24.6 kg	90	G	E	E	•	E	G	B/I	VHH
	DI-SYSTON 720LC	EC	2.8 - 4.6 L									
fonofos	DYFONATE 10G	GR	22.5/56.0 kg	*	•	•	•	•	•	G	I/BR	VHH
methamidophos	MONITOR 480L	SN	1.8 - 2.3 L	14	E	E	E	G	E	•	S	VHH
methidathion	SUPRACIDE 250EC	EC	1.1 - 2.2 L	14	•	•	•	G	E	•	S	MH
naled	DIBROM 8E	EC	1.1 L	4	•	•	•	G	G	•	S	MH
oxydemeton-methyl	META SYSTOX R 240SC	SC	1.8 - 2.3 L	7	G	E	E	•	•	•	S	MH
phorate	THIMET 15G	GR	16.8 - 24.6 kg	*	G	G	G	G	G	G	B/I	EH
phosmet	IMIDAN 50WP	WP	2.2 kg	7	•	•	•	G	E	•	S	LH
Synthetic pyrethoids												
cypermethrin	CYMBUSH 250EC	EC	0.14 L	14	•	•	•	E	E	•	S	VLH
	RIPCORD 400EC	EC	0.088 L	7								
deltamethrin	DECIS 2.5EC	EC	0.2 - 0.3 L	3	•	•	•	E	E	•	S	LH
fenvalerate	BELMARK 300EC	EC	0.1 - 0.33 L	7	•	G	G	E	E	•	S	LH
permethrin	AMBUSH 500EC	EC	0.14 - 0.21 L	1	•	•	•	E	E	•	S	VLH
	POUNCE 384EC	EC	0.19 - 0.28 L									
Bacteria												
Bacillus thuringiensis var. san diego	M-ONE	SU	5 - 10 L	0	•	•	•	E	•	•	S	VLH
Bacillus thuringiensis var. tenebrionis	TRIDENT	SU	12.4 L	0	•	•	•	E	•	•	S	VLH

Because of isolated cases of Colorado Potato Beetle resistance to insecticides and to prevent the development of resistance in other pests, AVOID REPEATED APPLICATIONS OF INSECTICIDES FROM THE SAME CHEMICAL GROUP.

NOTES ON INSECTICIDES

All insecticides listed here will control some potato pests. However, differences in their respective modes of action, persistence, sensitivity to temperature, pest specificity, etc. must be considered when choosing a chemical.

Many of the insecticides used on potatoes are highly poisonous to man, animals, fish and beneficial insects. Poisoning of the applicator can occur by swallowing, inhaling or by skin contact. FOLLOW ALL PRECAUTIONS STATED ON THE PRODUCT LABEL. It is against the law not to comply with the label instructions of a pesticide under the Pest Control Products Act of Canada. Contamination of fisheries waters by pesticides is also against the law under the Fisheries Act of Canada.

Carbamates

Non systemic carbamates generally remain effective for 7-10 days.

Carbaryl (Sevin 50W, 80S, XLR) has low toxicity to man and animals but is highly toxic to bees. It is effective against beetles for 3-4 days under favourable conditions (the XLR formulation may be wash-off resistant for as much as 7-10 days). It does not control aphids. Repeated applications usually cause an increase in aphid populations, since it kills aphid predators.

Carbofuran (Furadan 10G, 480F) is highly toxic to humans. Soil applications are effective through systemic and contact action and foliar applications through contact action. Both will control beetles and wireworms. The systemic does not persist long enough to control the second peak of flea beetles. Carbofuran does not control aphids. Applications of Furadan usually result in an increase in aphid populations, since it kills aphid predators.

Oxamyl (Vydate 240EC) has moderate toxicity to humans. It is effective against the beetles and the aphids through contact and systemic action.

Primicarb (Pirimor 50WP) has low toxicity to humans. It is very effective any time against aphids, acting through contact and vapour action.

Chlorinated hydrocarbons

Endosulfan (Endosulfan 400EC. Thiodan 400EC) is moderately toxic to humans. It is effective against beetles and the buckthorn aphid through contact and vapour action. Thorough wetting of all plant parts is essential for good control. Low temperatures decrease its effectiveness, especially against the buckthorn aphid.

Organo-phophates

Non systemic organo-phophates remain effective for 7-14 days.

Azinphos-methyl (Guthion 240SC) is highly toxic to humans. The lower rate is effective against the beetles but the higher rate is necessary to control the buckthorn aphid. It acts as a contact and stomach poison. It offers quick knockdown and has a residual action significantly longer than other non-systemic organo-phosphates.

Chlorpyriphos (Lorsban 480EC) has low toxicity to humans. It works through contact, ingestion and vapour action against the beetles. It does not control potato aphids.

Demeton (Systox 240SC) is highly toxic to humans. It is effective against all three species of aphids by contact and systemic action.

Dimethoate (Cygon 480EC, System 480EC) has low toxicity to humans. It is effective against the potato and the buckthorn aphids by contact and systemic action.

Disulfoton (Di-Syston 15G, 720LC) is highly toxic to humans. It is effective against all pests except the colorado potato beetle whose control has been variable. Especially effective early in the season.

Fonofos (Dyfonate 10G) is highly toxic to humans. It works through contact and ingestion against wireworms. It is most effective when broadcasted and incorporated into the soil by discing prior to planting.

Methamidophos (Monitor 480L) is highly toxic to humans. It is effective against both species of beetles and all three species of aphids by contact and local systemic action. It will control large populations of aphids late in the season. It provides a quick, initial knockdown as well as residual control.

Methidathion (Supracide 250EC) is moderately toxic to humans. It is a contact insecticide that gives good control of the beetles.

Naled (Dibrom 8E) is moderately toxic to humans. It is a fast acting contact insecticide that gives good control of the beetle. Do not apply above 32°C.

Oxydemeton-Methyl (Meta Systox R 240SC) is moderately toxic to humans. It controls all three species of aphids by means of contact and systemic action. It is particularly effective against the potato and buckthorn aphids because of its systemic action during the period of active plant growth.

Phorate (Thimet 15G) is highly toxic to humans. It is effective against all pests. it does not persist long enough to control the second peak of flea beetles and its control of aphids is variable.

Phosmet (Imidan 50WP) has low toxicity to humans. It is a contact and stomach poison that is effective against the beetles.

Synthetic Pyrethroids

Synthetic pyrethroids are usually most effective at temperatures below 24°C. They are generally toxic to bees and other beneficial insects but most are of low mammalian toxicity. These insecticides are extremely toxic to fish, shellfish and aquatic organisms which are food for fish and waterfowl. Careless use can seriously harm sport and commercial fisheries and wildlife. Although pyrethroids are generally poor potato aphicides, they have a repellent effect on colonising aphids which may protect the plants from infestation and virus spread as long as the residual dose is sufficient, even if it is no longer lethal. Being virtually insoluble in water, they offer excellent resistance to leaching out during rain. They should not be used on muck soils.

Cypermethrin (Cymbush 250EC, Ripcord 400EC) is effective against the beetles by contact and stomach action.

Deltamethrin (Decis 2.5EC) is effective against the beetles as a contact and stomach poison. May be effective against the common potato aphid and the buckthorn aphid at higher rates.

Fenvalerate (Belmark 300EC) is moderately toxic to humans. It is a broad spectrum contact and stomach poison that is effective against the potato and buckthorn aphids and the beetles. Against aphids, the higher rate should be used and good coverage is essential. Better aphid control results if application is made before the aphid population has become large.

Permethrin (Ambush 500EC, Pounce 384EC) is effective against the beetles. Thorough coverage of plants is important and the higher rate is required for heavy infestations. It is a contact and stomach poison.

Bacteria

Some varieties of the bacterium *Bacillus thuringiensis* are active against the larvae of the colorado potato beetle. For optimum results, apply early in the season against small actively feeding larvae. Repeat the applicaiton twice at intervals of 5-7 days or after a heavy rainfall. The bacteria are not fast acting. Larval death occurs only 1-5 days later but the larvae stop feeding after eating foliage sprayed with the bacteria. These products are not very effective against large larvae and **will not** kill adults and other insect species.

M-one is effective against the colorado potato beetle larvae by stomach action. The higher rate is required for heavy infestations.

Trident is effective against the colorado potato beetle larvae by stomach action.

HERBICIDES

SEE NOTES AND PRODUCT LABELS FOR DETAILS ON HERBICIDES

* Weed Control Rating
E — Excellent
G — Good
F — Fair
P — Poor

	Chemical Name	Product Name (s)	Formulation	Recommended Rates Product / ha	* WEED CONTROL RATING															
					annual broad leaves							annual grasses				perenials				
					hempnettle	lamb's-quarters	mustard family	pigweeds	ragweeds	smartweed family	wild buckwheat	barnyard grass	foxtail	crabgrass		quack grass	Canada thistle	sow thistle	Potato Tolerance	Hazard Rating
BEFORE PLANTING	EPTC	Eptam 8E (800g / L)	EC	6.2 - 8.4L / ha	—	P	P	E	—	F	P	E	G	G		G	P	P	E	VLH
	glyphosate	Roundup	SN	2.5L / 50 - 100L water	+	+	+	+	+	+	+	+	+	+		G	P	E	P	VLH
	glyphosate	Roundup (356g / L)	SN	4.7 - 7.0 L / ha	+	+	+	+	+	+	+	+	+	+		E	E	E	P	VLH
	glyphosate + Frigate	Roundup + Frigate	SN + SURF	2.5 L + 1 L / 200 L water	+	+	+	+	+	+	+	+	+	+		F	P	E	P	—
	EPTC	Eptam 8E	EC	4.2 - 5.6 L / ha	—	P	P	F	F	F	P	G	G	G		F	P	P	E	VLH
	metolachlor	Dual (960 g / L)	EC	2.1 - 2.8 L / ha	P	—	—	—	—	—	P	G	G	G		P	—	P	G	VLH
	glyphosate + Enhance	Roundup + Enhance	SN + SURF	2.5 L + 0.5 L / 100 - 200 L water	+	+	+	+	+	+	+	+	+	+		E	—	—	P	—
PLANTING TO EMERGENCE	linuron	Afolan F (480 g / L) or Lorox L (480 g / L)	EC, SU	2.3 - 4.7 L / ha	G	E	E	G	G	E	E	F	F	F		P	—	P	F	VLH
		Lorox FL or Linuron WP (50%)	WP	2.2 - 4.4 kg / ha																
	linuron + metolachlor	Afolan-F + Dual	Flow + EC	1.8 - 2.3 L / ha + 2.0 - 2.75 L / ha	G	E	E	E	G	E	G	E	E	E		P	P	P	E	LH
	metobromuron	Patoran - FL (400 g / L)	FLOW	4.25 - 8.5 L / ha	G	E	E	E	G	F	E	F	F	F		P	—	P	G	VLH
		Patoran FLOW (670 g / L)	FLOW	2.6 - 5.1 L / ha																
	metribuzin	Lexone DF or Sencor DF (75%)	DF	0.56 - 1.5 kg / ha	E	E	E	E	E	E	G	G	G	G		P	—	P	G	VLH
		Lexone L or Sencor 500F	SU	0.84 - 2.2 L / ha																
	monolinuron	Afesin (200 g / L)	EC	5.6 - 11.2 L / ha	—	G	G	G	F	G	E	F	—	P		P	—	P	F	LH
	prometryne	Gesagard (80% WP)	WP	2.8 - 3.5 kg / ha	—	F	G	G	F	G	—	P	—	F		P	—	P	G	VLH
	monolinuron + metolachlor	Afesin + Dual	EC + EC	5.5 - 8.5 L / ha + 2.0 - 2.7 L / ha	—	E	G	G	F	G	E	G	G	G		P	—	P	G	—
	metolachlor + metobromuron	Dual + Patoran-FL(400 g L)	EC + FLOW	2.2 L / ha + 4.25 L / ha	G	E	E	E	G	G	E	E	G	G		P	—	P	G	—
		Dual + Patoran FLOW (670 g / L)	EC + FLOW	2.2 L / ha + 2.5L / ha																

BEFORE EMERGENCE (GROUND CRACK)	metobromuron	Patoran - FL (400 g / L)	FLOW	4.25 - 8.5 L / ha	G	E	E	E	G	G	E	F	—	—		P	—	P	G	VLH
		Patoran (670 g / L)	FLOW	2.6 - 5.1 L / ha																
	prometryne	Gesagard	WP	2.8 - 3.5 kg / ha	—	E	E	G	F	G	—	F	—	—		P	—	P	G	VLH
	metribuzin	Lexone DF or Sencor DF	DF	0.6 - 1.5 kg / ha	E	E	E	E	E	E	G	G	—	—		F	—	P	G	VLH
		Lexone L or Sencor 500F	SU	1.0 - 2.2 L / ha																
	paraquat	Gramoxone (200) g / L)	SN	2.8 - 5.5 L / ha	F	G	G	G	—	F	F	P	—	—		G	P	F	G	LH
SOON AFTER EMERGENCE— CHECK NOTES FOR PRECAUTIONS	metribuzin	Lexone DF or Sencor DF	DF	0.56 - 1.0 kg / ha	E	E	E	E	E	E	G	G	—	—		F	—	P	F	VLH
		Lexone L or Sencor 500F	SU	0.84 - 1.5 L / ha																
	diclofop-methyl	Hoe-Grass (284g / L) **	EC	3.5 L / ha	P	P	P	P	P	P	P	E	E	P		P	P	P	E	VLH
	paraquat	Gramoxone (200 g / L)	SN	3.0 L / ha	F	G	G	G	—	F	F	F	—	—		G	—	F	F	LH
	fenoxaprop ethyl	Excel (90 g / L) **	EC	1.35 L / ha	P	P	P	P	P	P	P	E	E	E		P	P	P	E	VLH
POST-EMERGENCE	fluazifop-p-butyl Annual Grass (2-5 leaf)	Fusilade II *** (125 g / L)	EC	0.8 L / ha	P	P	P	P	P	P	P	E	E	G		F	P	P	E	VLH
	fluazifop-p-butyl Quackgrass (3-5 leaf)	Fusilade II*** (125 g / L)	EC	2.0 L / ha	P	P	P	P	P	P	P	E	E	G		E	P	P	E	VLH
	sethoxydim + ASSIST (wild oats + volunteer cereals)	Poast (184 g / L) + ASSIST	EC + SURF	1.4 - 1.9 L / ha + 2 L / ha	P	P	P	P	P	P	P	E	E	E		P	P	P	E	VLH
	sethoxydim + ASSIST Annual Grass (2-5 leaf)	Poast (184 g / L) + ASSIST	EC + SURF	0.8 L / ha + 0.5 - 2.0 L / ha	P	P	P	P	P	P	P	E	E	E		P	P	P	E	VLH
	sethoxydim + ASSIST Quackgrass (1-3 leaf)	Poast (184 g / L) + ASSIST	EC + SURF	4.4 L / ha + 2 - 4 L / ha	P	P	P	P	P	P	P	E	E	E		G	P	P	E	VLH
	sethoxydim + ammonium sulphate + ASSIST Quackgrass (1-3 leaf)	Poast (184 g / L) + ammonium sulphate + ASSIST	EC + SP + + SURF	2.7 L / ha + 2 kg / ha + 2L / ha	P	P	P	P	P	P	P	E	E	E		E	P	P	E	VLH
UP TO 60 DAYS BEFORE HARVEST	EPTC at lay-by	Eptam 8E	EC	4.2-5.6 L / ha	—	G	P	F	F	F	P	G	G	G		F	P	P	E	VLH

LEGEND

* A dash (—) in the weed control rating indicates lack of information. Do not use a herbicide more than once or apply an additional herbicide during the growing season unless split or combination treatments are recommended.

A plus (+) in the weed control rating indicates weeds will be controlled if emerged.

** Do not tank mix with other herbicides

*** Do not use Fusilade II within 90 days of harvest.

+ Do not use Poast within 80 days of harvest. Always use Assist oil concentrate at label rates recommended. Do not tank mix except as recommended.

NOTE: FOR ADDITIONAL INFORMATION AND CAUTIONS ON HERBICIDE USE, REFER TO "Guide to Weed Control," Publication 75 and product labels

NOTES ON HERBICIDES

All herbicides are known by a chemical name. Agricultural chemical companies use trade names for their products, but, by law, they must include on the label the accepted chemical name for the herbicide and the actual amount of that herbicide in the product.

Supply companies sell products with different concentrations for the same herbicide and over the years some have changed the concentration of active herbicide in a product. The concentrations of metribuzin, EPTC, prometryne and several other herbicides have been changed. Thus, suggested rates in these notes specify the amount of herbicide product required per hectare followed by the amount of active herbicide required in kilograms per hectare.

DICLOFOP-METHYL, sold as **Hoe-Grass** contains 284 g diclofop-methyl per litre of **Hoe-Grass.**

Diclofop-methyl is applied post-emergence to the potatoes for control of annual grasses in the 1 to 4 leaf stage. It will effectively control barnyard grass, green and yellow foxtail, wild oats, old witchgrass, fall panicum and volunteer corn. Apply at 1 kg active per hectare which is Hoe-grass at 3.5 litres / hectare in 100 to 300 litres of water per hectare. Do not apply if rain is expected within one hour after application. Tank mixture of diclofop-methyl with other chemicals must not be used.

As diclofop-methyl controls only certain weeds, it is important to control broadleaf weeds by using a pre-emergence herbicide such as linuron or monolinuron.

EPTC, sold as **Eptam 8E,** contains 800 gms emulsifiable concentrate (EC) of EPTC per litre. It is applied under low pressure 200 KPa in 110 - 340 litres of water per hectare. Also available in granular formulations, it is used for potatoes as a preplanting, pre-emergence or postemergence treatment for many weeds, including annual grasses, quack grass and nutsedge. A few broadleaf weeds, such as wild radish, lamb's quarters and wild mustard are not controlled.

For control of annual grasses apply and incorporate EPTC either preplanting or at lay-by at 3.4 to 4.5 kg active per hectare which is 4.2 to 5.6 litres / ha of Eptam 8E.

For control of dense stands of nutsedge and quackgrass apply and incorporate EPTC preplanting at 5.6 to 6.7 kg EPTC per hectare which is 6.25 to 8.4 l / ha of Eptam 8E. The underground quack grass rhizones must be cut up throughly so that four or less nodes remain on a stand. This is best done with discs set to cut 15 to 20 cm deep.

EPTC must be incorporated into the soil immediately to prevent loss of the herbicide. Once trapped into the soil, the vapour which forms when EPTC comes into contact with moisture acts to destroy germinating weed seeds and quackgrass rhizomes if the rhizomes are cut into short lengths of 7.5 cm or less. The soil must be in good tilth and have a dry surface. EPTC sprayed on wet soils vaporizes quickly into the air and is lost. It is less active in cold soils than in warm soils. It is difficult to incorporate into stoney soil. Whenever possible, application and incorporation should be done in the same operation.

EPTC is incorporated using power driven cultivation equipment set to cut to a depth of 5 to 8 cm, or tandem discs set to cut to a depth of 10 to 15 cm, operated at 6.4 to 9.7 kilometers per hour, or a Danish type cultivator, with tines set on 15 to 20 cm centers, set 10 cm deep, operated at 10 to 13 km / hr. and followed by a spike tooth harrow or some other levelling device which extends beyond the ends of the discs or cultivator.

An overspray with a pre-emergence or postemergence herbicide for germinating annual broadleaf weeds is usually required to control some of the weeds tolerant to EPTC.

FENOXAPROP ETHYL, sold as **Excel** contains 90 g of fenoxaprop ethyl per litre of Excel.

Fenoxaprop ethyl is applied post-emergence to the potatoes for control of annual grasses in the 1 to 6 leaf stage. It will control green and yellow foxtail, barnyard grass, crabgrass, old witch grass, fall panicum and volunteer corn. Fenoxaprop ethyl does not control broadleaf weeds, sedges, quackgrass or other perennial grasses. Second flushes of annual grasses will not be controlled since fenoxaprop ethyl is not residual.

Apply 0.120 kg active per hectare which is 1.35 L of Excel per hectare in at least 100 litres of water per hectare. Thorough coverage of the foliage is essential for effective grass control. Application through flat fan nozzles at a 45 degree angle forward will result in the best spray coverage.

As fenoxaprop ethyl controls only grassy weeds, it is important to control broadleaf weeds with another herbicide. A time interval of four days before or after fenoxaprop ethyl application is required before any other pesticide is applied.

FLUAZIFOP-P-BUTYL, sold as **Fusilade II** contains 125 g fluazifop-p-butyl per litre of Fusilade II.

It is applied post-emergence to the potatoes and weeds and will give control of many annual grasses and also quackgrass. It does not control broadleaf weeds or sedges such as nutsedge. Growth of grasses stops soon after application but kill of the whole plant may take several weeks. For annual grass control, apply at 0.1 - 0.17 kg ai / ha which is 0.5 - 1.4 litres per hectare of Fusilade when the annual grasses have 2-5 leaves. For quackgrass control, apply 0.25 kg ai / ha which is 2 litres per hectare of Fusilade II when the quackgrass has 3 to 5 leaves on each shoot.

GLYPHOSATE, sold as **Roundup** containing 356 grams of glyphosate per litre as isopropylamine salt, for perennial weed control prior to planting potatoes.

Apply glyphosate in the spring or fall at 1.7 to 2.5 kg/ha that is 4.7 to 7 litres of Roundup per hectare for quach (couch) grass control. The quack grass must be at least 20 centimeters in height (3 to 4 leaf stage). Tillage prior to application will reduce control of quack grass.

Weed control with glyphosate is reduced if dirty water is used for application. Where tillage is desired, delay for 5 to 7 days after application. Glyphosate has no soil activity. Therefore, it will not injure crops planted in the treated area.

LINURON* sold as **Afolan F** or **Lorox L** both containing 480 g linuron per litre or **Lorox WP** or **Linuron WP** with 50% linuron concentration before potato sprouts emerge, never on the sprouts. Abnormally heavy rainfall following application may cause crop injury. However, moisture is needed for good weed control action. Potato sets should be 5 cm below the treated soil.

Apply linuron at 1.1 to 2.2 kg/ha active linuron, which with Lorox L and Afolan, is 2.3 to 4.6 L/ha, or with Lorox 50 or Linuron 50 WP is 2.2 to 4.5 kg/ha. The high rate usually controls annual grasses such as barnyard grass. Do not use on sand or coarse textured soils low in organic matter. Use the higher rate on clay.

Linuron formulated as a wettable powder(W.P.) requires constant agitation to keep it in suspension.

METOBROMURON, sold as **Patoran** as two flowable formulations is applied in 150 to 300 litres/ha as a single treatment pre-emergence to both potatoes and weeds.

Apply metobromuron pre-emergence at 1.7 to 3.4 kg/ha which is 4.25-8.5L/ha of patoran (400g/L) or 2.5-5.0 L/ha or Patoran FLOW (670 g/L) or at ground crack at 1.0 to 3.4 kg/ha which is 2.5-8.5 L/ha or Patoran (400 g/L). Use the lower rates on lighter soils. These require constant agitation in the spray tank. If annual grasses are present see notes on metolachlor for combination treatment. If annual grasses are not present the lowest rate may be used for annual broadleaf weed control.

Metrobromuron enters weeds principally through the roots. Where annual grasses are a problem, use the higher rate recommended for the soil type. To improve weed control activity during a prolonged drought, metobromuron can be incorporated in the top 4 cm of soil.

METOLACHLOR, sold as **Dual** containing 960 g/L emulsifiable concentrate (EC) metolachlor, is applied at a pressure not exceeding 200 kpa with fan type nozzles. Follow label directions for adding metolachlor to the tank during filling.

Apply metolachlor at 2 to 2.7 kg/ha which as Dual 960E is 2.1 to 2.8/ha. For control of nutsedge apply preplant incorporated (ppi) (see label) only or for annual grasses either ppi or pre-emergence. Use the higher rate wherever annual grass or nutsdge predominates. Do not apply on potato variety Superior. Do not apply metolachlor at ground cract or if potatoes have emerged. If metolachlor is applied pre-emergent, it can be tank mixed with metobromuron in order to control broadleaf annual weeds. Do not use these mixtures on sandy soils of less than 3% organic matter. Do not incorporate tank mixed of metolachlor plus metobromuron into the soil.

If drought conditions persist after metolachlor application, either preplant incorporated or pre-emergent annual grass control may not be adequate. The herbicide lasts 10 to 14 weeks in the soil and requires 0.6 to 1.25 cm of rain within 10 days to activate it. It is effective over a wide range of soil types but should not be applied to muck, peat muck or high organic matter soils. Perennial weeds are not controlled.

METRIBUZIN is sold as **Lexone** or **Sencor.** Lexone DF and Sencor DF (dry flowable) contain 75% metribuzin. Sencor 500F, a liquid, contains 500 g/L and Lexone L 480 g/L.

Metribuzin is used pre-emergence to potatoes at 0.42 to 1.1 kg active per hectare which with Lexone DF is 0.56 to 1.5 kg/ha or with Sencor 500F is 0.84 to 2.2 L/ha. The higher rate is usually required to control annual grasses and dense weed infestations. Also, the higher rate will retard the growth of quackgrass (use the lower rate for broadleaf weed control only.) Moisture is needed shortly after a pre-emergence application for better weed control.

Do not use on Belleisle or Tobique cultivars. Use only pre-emergence on Shepody cultivars. Do not use on muck soil. Fall-seeded cover crops and certain vegetables such as cole crops, seeded the following spring are likely to be injured. Avoid overlaps that will increase dosages above the recommended. Read the manufacturer's label.

PRE-EMERGENCE APPLICATION (PLANTING TO GROUND CRACK) OF METRIBUZIN IS PREFERRED. However, where it is not possible to spray before crop emergence, metribuzin can be applied early postemergence before weeds are 4 cm high and before first emerged potato tops are 7.5 cm high. This treatment may cause temporary yellowing and/or leaf burn, especially when the crop is under the stress of poor growing conditions such as cool, wet, cloudy weather. Under Atlantic Canada conditions, a few early postemergence applications have ocasionally reduced vine growth sufficiently to retard bulking and possibly to reduce yield. However, under these situations, the use of metribuzin early postemergence to potatoes could be better than abandoning the crop to weeds which are difficult to control by cultivation such as barnyard grass.

Some of the limitations on early postemergence applications are as follows:

a) Do not use when plants are under stress, such as cool, wet, cloudy weather or very dry soil conditions.

b) If insufficient metribuzin was used pre-emergence, it may be necessary to apply an additional early postemergence treatment to control annual grass. In one season, do not apply more than a total of 1.1 kg active metribuzin per hectare.

c) Weed control with early postemergence application is most effective when spray is applied before weeds are 4 cm high.

d) Do not apply metribuzin early postemergence on Shepody, Tobique, Belleisle, red-skinned varieties or potatoes grown for early market.

e) Superior and Norchip are mid-season varieties which appear to be sensitive to metribuzin applied postemergence.

MONOLINURON, sold as **Afesin** is an emulsifiable concentrate (E.C.) containing 200 mg of monolinuron per litre.

Monolinuron is applied in 225 to 450 litres of water per hectare between planting and emergence of potatoes; never on potato shoots.

Apply monolinuron at 1.1 to 2.2 kg active per hectare which is 5.6 to 11.2 litres of Afesin per hectare. Use the lower rate on soils with low organic matter and the higher rate on clay or soils high in organic matter.

PARAQUAT, sold as **Gramoxone** containing 200 gm paraquat per litre kills weeds on contact with the foliage. Apply in 280 to 560 litres of water per hectare to emerged weeds including quackgrass. It can be used in N.B. and P.E.I., postemergence on potatoes except Russet Burbank) up until the stems are 5 cm high (one week after ground crack). Do not apply postemergence to potatoes in the evening, or on cloudy days, or when the plants are under moisture shortage. Temporary chlorosis (loss of leaf colour) of potato leaves will occur.

Paraquat is used to reduce the growth of quackgrass at 0.56 kg active paraquat per hectare which is 2.8 litres of Gramoxone per hectare.

Application of paraquat for emergence control of quackgrass and emerged annual grass may be made when shoots are up to 10 cm high (not to Russet Burbank) but potato leaf chlorosis may be more severe and yield could be reduced. Late application should only be considered when quackgrass or annual grasses threaten the crop.

Paraquat is inactivated on contact with the soil so there is no residual action in the soil. If new weed growth appears, it will be necessary to cultivate or use a postemergence herbicide. Usually, the lay-by cultivation (hilling) will be sufficient. For residual control of annual broadleaf weeds and annual grasses, tank mix paraquat and metribuzin at 0.56 kg / ha or linuron, metobromuron or monolinuron at 1.1 to 1.7 kg / ha. Use the lower rate of linuron, metobromuron, or monolinuron on lighter soils and the higher rate on heavier soils with high organic matter. Apply the tank mix before the potatoes emerge.

Use clear water for applying paraquat as it is deactivated by clay or organic particles.

PROMETRYNE, sold as **Gesagard** containing 80 % prometryne, is a wettable powder formulation. It is applied in 170 to 340 litres of water per hectare shortly before or at emergence of potatoes, providing no more than 10% of the crop has emerged.

Apply prometryne at 2.2 to 2.8 kg active per hectare which is 2.8 to 3.5 kg of Gesagard 80 WP per hectare. Use lower rate on coarse sandy soils.

Prometryne applied pre-emergence to weeds requires rainfall or irrigation for satisfactory weed control. Addition of a surfactant or a suitable emulsifiable oil will improve control of annual grasses when prometryne is applied to emerged weeds.

SETHOXYDIM, sold as **Poast** contains 184 grams of sethoxydim per litre. Sethoxydim is a postemergence, contact and systemic herbicide for the control of certain grasses and uptake is primarily through leaves. Thorough coverage of the foliage is necessary for consistent grass control. Complete annual grass control takes 7 to 21 days depending on growing conditions and crop competition. Control of quackgrass may take 6 to 8 weeks.

Application is made at the 1 to 6 leaf stage of annual grasses and at the 3 leaf stage of quackgrass. A cultivation no sooner than 7 days after application of sethoxydim will improve grass control. ASSIST OIL CONCENTRATE must be added to all applications of sethoxydim. Best results are obtained in water volumes of 50 to 200 litres per hectare. Do not use flood jet or hollow cone nozzles with this herbicide as level of grass control will be reduced. See product label for information on rate of application and mixes with AMMONIUM SULPHATE. This herbicide does not control broadleaf weeds. Use an appropriate pre-emergence herbicide to control broadleaf weeds.

SPROUT INHIBITORS

Sprout inhibitors provide a rather inexpensive means of keeping potatoes in good condition for the late fresh or processing markets. Sprouts cause shrinkage of the tuber and result in smaller volume of saleable potatoes. Mechanical or manual removal of sprouts is not required where inhibitors have been used.

When sprout inhibitors are used as directed there is no harmful effect on humans and residues are below tolerance levels.

Name	Method	Comments
maleic hydrazide (Royal MH 60SG)	Applied at 3.39 kg active (5.65 kg product) per hectare in a minimum of 300 L / ha water by ground equipment or a minimum of 100 L / ha water by aerial equipment.	**Time of application is critical.** Follow the instructions on the label carefully.
chlorpropham (CIPC)	Applied in storage after curing and suberization are complete. Cannot be used in a storage containing seed potatoes. Seed cannot be safely stored in a treated house within six months of treatment. Misted on potatoes during grading operation.	CIPC for in-storage application is available only from manufacturer's representative and must be applied under his supervision. Effectiveness of this treatment is reduced on dirty potatoes. This treatment used to control sprouting during retailing and home storage by the consumer.

• Never use sprout inhibitors in a seed storage. • Never store treated potatoes in a seed storage. • Never use treated potatoes for seed.

TOPKILLERS

Chemical Name	Product Name	Formulation	Product/ha	Hazard Rating
diquat	Reglone (200g/L)	SN	1.5-2.75* L/ha plus 1.5 L/ha 6 days later if needed	LH
* Use 2.75 L/ha on dense or immature vines.,				
Use the higher rate on green, immature, dense or rapidly growing tops.		Use a lower rate on tops showing some maturity, yellowing or senescence.		

NOTES ON TOPKILLERS

DIQUAT is the active chemical in **Reglone.** Application should be made after growth has passed its peak, rather than when plants are growing actively.

Apply diquat in at least 560 litres of water per hectare (label direction). Do not apply diquat during drought conditions, wait for at least three days after the soil has been thoroughly moistened by rain or irrigation. Do not use diquat if the tops have been dmaged by a rotobeater or other similar machine. Do not use wetters (surfactants), except as directed on the label. Use clear water with diquat as it is deactivated by clay or organic particles.

Red Pontiac may be sensitive to high rates of diquat as some stem-end rot has been encountered especially when diquat was applied at higher than the recommended rate.

Diquat and Fentin hydroxide (Du-Ter) should not be applied in combination for topkilling. Laboratory tests show that diquat (Reglone) is stable and compatible with the following fungicides: Difolatan 4.8F, Dithane M22 (Mantox, Sabithane, etc.), Dithane M45, Polyram 80W Bravo Flowable and Tricop (tribasic copper sulphate). A thick curd-like foam forms sometimes with Bravo 75W.

FOLIAR FUNGICIDES

FUNGICIDES	FORMULATION	PRODUCT (RATE ha)			HAZARD RATING
		LATE BLIGHT	EARLY BLIGHT	BOTRYTIS VINEROT (GRAY MOULD)	
Chlorothalonil (Bravo)	500 flowable	1.3 - 2.4L	1.6 - 2.4 L	1.6 - 2.4 L	VLH
Mancozeb (Dithane M45) (Manzate 200)	80% W.P.	1.7 - 2.2 kg	1.7 - 2.2 kg	--	VLH
Mancozeb (Dithane F-45)	75% D.G.	1.7 - 2.2 kg	1.7 - 2.2 kg	--	VLH
(Manzate 200)	75% D.F.	1.7 - 2.2 kg	1.7 - 2.2 kg	--	VLH
Metiram (Polyram)	80% D.F.	1.75-2.25 kg	1.75-2.25 kg	--	VLH
*Metalaxyl Mancozeb (Ridomil MZ)	72% W.P.	2.5 kg	**	--	

*Metalaxyl is a temporary registered product and is for limited use.
** Metalaxyl does not control early blight.

POTATO SEED PIECE TREATMENT

PRODUCTS		FORMULATION	PRODUCT / 100 kg / SEED	HAZARD RATING
MANCOZEB + Douglas Fir Bark	Tuberseal	16% DU	.5 kg	VLH
MANCOZEB + Alder Bark	Clean Crop	8% DU	1.0 kg	VLH
Captan + Diazinon	Captan	7.5% + 0.1% DU	.5 kg	LH
Metiram	Polyram 7	7.0%+0.1% DU	1 - 1.5 kg	LH
Metiram + Diazinon	Fungicide Insecticide DU	7.0 + 0.1% DU	1 - 1.5 kg	LH
Thiophanate - Methyl	Easeout	10%+0.2% DU	0.5 kg	LH

POST HARVEST FUNGICIDE

Apply MERTECT, Thiabendazole, as a mist spray on WHOLE potatoes going into storage to control the fungal diseases: Fusarium, Phoma, Rhizoctonia, Silver Scurf and Skin Spot. The control of these diseases is obtained by adding 8 litres of Mertect (45%) to 170.21 litres of water. Apply this suspension at the rate of 2 litres per metric tonne of potatoes. This treatment is effective only when the TOTAL surface of each tuber is covered and recommended rates are used.

In addition, Mertect can be applied at the same application rate when potatoes are being moved, as fungal organisms are present on grading equipment and mechanical injuries will create an entry point for fungal diseases. Do not use after sprout initiation.

CAUTION: DO NOT combine Mertect with chlorinated compound.

RULES FOR CHEMICAL PESTICIDE SAFETY

Treat all pesticide (insecticides, herbicides, fungicides, etc.) as poisonous substances and handle them with great caution. They can kill.

1. Read each pesticide label carefully and follow the instructions. The instructions on a pesticide label serve to safeguard the health of the user as well as to ensure the pesticide is employed as efficiently and economically as possible. When in doubt, read the label.
2. Always wear the recommended protective clothing and safety equipment. Pesticides may enter the user's body through the skin, the mouth or by inhalation. The protective equipment worn by the conscientious pesticide applier includes a respirator or gas mask, a wide-brimmed hat, goggles, a shirt with long sleeves over neoprene or rubber gloves, overalls with rubber bands around the cuff, and neoprene or rubber boots. Because fumigants are readily absorbed by neoprene, be sure to follow label instructions.
   Don't follow someone else's bad example. Wear the required safety equipment. It's for your own good.
3. Open, pour, weigh and mix pesticides in a safe manner and according to label instructions. Use the proper tools to open a container. Stand upwind of all opening, pouring and mixing operations, and in a well-ventilated area. Avoid splashing and spilling.
4. Learn to recognize the typical signs of poisoning and the correct first aid procedures. Keep a first aid kit handy. Some symptoms of acute poisoning are nausea, diarrhea, loss of muscle coordination, stomach cramps, mental confusion, etc.
5. If you feel ill during pesticide application, stop work and seek medical attention at once. Do not carry on because of the work schedule. Always save the pesticide container or the label to assist the medical aid person.
6. Do not permit any person including yourself, to work alone when handling or applying pesticides.
7. Never use your mouth to siphon liquid materials or to blow out a clogged spray nozzle.
8. Keep people and animals away from contaminated equipment and areas until decontamination procedures are complete.
9. Be sure a good supply of lime, sawdust, or other absorbent is available on site to soak up a spilled pesticide.
10. Do not permit anyone unfamiliar with chemical safety practices to carry out cleaning or maintenance procedures. Appropriate protective equipment is necessary for cleaning and maintenance personnel.
11. Always dispose of irreparable faulty protective equipment and contaminated clothing.
12. Do not store pesticides near any food or drink. Store them in a locked, well-marked area and out of the reach of children.
13. Do not keep any food, drink, tobacco, cups or cutlery anywhere in the work areas or work clothes. Refrain from smoking, eating, or drinking while mixing or applying pesticides.
14. Dispose of empty containers by crushing and puncturing and burying in at least 50 cm of soil at a recommended site or on your own property away from watercourses, crops, animals, or human habitation. Recycle 200 L drums if possible. Small pesticide containers should be thoroughly rinsed at least three times with the rinsings being added to the spray mix.
15. After handling pesticides, wash hands carefully before eating, drinking, smoking, or using the toilet.
16. Shower thoroughly, with special attention to hair and fingernails, after each pesticide application is complete. Change clothes daily or more often if any contamination occurs. Wash contaminated clothing separately from normal laundry.
17. Before mixing and applying pesticides, clear all livestock, pets and people from the area to be treated. Apply pesticides only at the correct time and under acceptable weather conditions.
18. Check the application equipment. Look for leaking hoses, or connections, plugged or worn nozzles, and examine the seals on the filter openings to make sure they will prevent pesticide spillage.
19. Mix the pesticide at the recommended rate, and apply at the specific dosage on the label. Carry only a sufficient quantity of the pesticide for the job at hand.

POISON INFORMATION CENTRES

The hospitals listed below are equipped and staffed 24 hours a day to provide emergency information on potentially toxic substances and to recommend and give treatment.

Newfoundland

Labrador City	—Capt. Wm. Jackman Memorial Hospital 944-2632
Cornerbrook	—Western Memorial Hospital 637-5000
Gander	—James Paton Memorial Hospital 651-2500
Grand Falls	—Central Newfoundland Regional Health Centre 292-2500
St. Anthony	—Charles S. Curtis Memorial Hospital St. Anthony 454-3333
St. John's	—The Dr. Charles A. Janeway Child Health Care Centre 722-1110

Prince Edward Island

Charlottetown	—Queen Elizabeth Hospital 566-6111
Montague	—Kings County Memorial Hospital 838-2152
Summerside	—Prince County Hospital 436-9131

Nova Scotia

Halifax	—The Izaak Walton Killam Hospital for Children 428-8111

New Brunswick

Campbellton	—Campbellton Regional Hospital 753-3301
Fredericton	—Dr. Everett Chalmers Hospital 452-5400
Moncton	—Moncton Hospital 857-5111
Saint John	—Saint John Regional Hospital 648-6000
Edmundston	—Edmundston Regional Hospital 735-3361
Bathurst	—Chaleur Regional Hospital 548-8961

SAFETY FIRST

COMPATIBILITY OF PESTICIDES

+	generally compatible
X	incompatible
□	not usually mixed or compatibility not known
WP	use wettable powder forms
C	generally satisfactory occasional damage occurs
I	do not use WP formulation

	INSECTICIDES	Ambush, Pounce	Belmark	Cygon, System	Cymbush	Decis	Furadan	Guthion	Imidan	Lorsban	Metasystox - R	Monitor	Pirimor	Sevin	Supracide	Systox	Thiodan, Endosulfan	FUNGICIDES	Bravo	Difolatan	Dithane M45, Manzate 200	Polyram	Ridomil	TOPKILLERS	Potato Topkiller, Dytop	Reglone
INSECTICIDES																										
Ambush, Pounce		•		+				+		+	+	+	+	+	+	+	+		+	+	+	+				
Belmark			•																+	+	+	+				
Cygon, System		+		•	+			+	+	+	+	+		+	+	+	+		+	+	+	+				
Cymbush				+	•			+		+	+	+	+	+	+	+	+		+	+	+	+				
Decis						•											+			X						
Furadan							•								+		+		+	+	+	+				
Guthion		+		+	+			•	+	+	+		+	+	+	+	+		WP	WP	WP	WP	+			
Imidan				+				+	•	+	+	+		+		+	+		+	+	+	+				
Lorsban		+		+	+			+	+	•	+	+		+		+	+			WP						
Metasystox - R		+		+	+			+	+	+	•	+	+	+	+	+	+		+	+	+	+	+			
Monitor		+		+	+				+	+	+	•	+	+		+	+		+	WP	+	+	+			
Pirimor		+			+			+			+	+	•	+		+	+		C	+	+	+				
Sevin		+		+	+			+	+	+	+	+	+	•	+	+	+		+	+	+	+				
Supracide		+		+	+		+	+			+			+	•	+	+		+	+	+	+	+			
Systox		+		+	+			+	+	+	+	+	+	+	+	•			+	+	+	+	+			
Thiodan, Endosulfan		+		+	+	+	+	+	+	+	+	+	+	+	+		•		+	WP	+	+				
FUNGICIDES																										
Bravo		+	+	+	+		+	WP	+		+	+	+	+	+	+	+		•	+	+	+	+			I
Dithane M45, Manzate 200		+	+	+	+		+	WP	+		+	+	+	+	+	+	+		+	+	•	+	+			+
Polyram		+	+	+	+		+	WP	+		+	+	+	+	+	+	+		+	+	+	•	+			+
Ridomil MZ								+			+	+			+	+			+	+	+	+	•			
TOPKILLERS																										
Reglone																			I	+	+	+				•

This chart applies only to the use of two-material spray combinations. When three or more materials are tank-mixed or when a wettable powder and a liquid formulation are mixed, incompatibility may develop. Follow directions on the label.

NOTE:
- This chart is only a guide to mixing - refer to pesticide label.
- Some plant nutrients applied as a foliar spray may influence the effectiveness of certain pesticides
- Mineral oil sprays are not compatible with fungicides
- Do not allow spray mixtures to stand for long periods before using
- When mixing a wettable powder and a emulsifiable concentrate, put the powder into solution first